



Serial No.: 09/695,874

Affidavit under '1.132

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Docket No. 02410219AA

Yoshiaki Umehara et al.

Serial No.: 09/695,874

Group Art Unit: No. 3683

Filed: October 26, 2000

Examiner: Melody M. Burch

For: **CALIPER BODY AND METHOD OF
MANUFACTURING CALIPER BODY
OF VEHICULAR DISC BRAKE**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**DECLARATION UNDER 37 C.F.R. '1.132
OF
KEISUKE BAN**

Sir:

I, Keisuke Ban, declare as follows:

1. I am a graduate of Musashi Institute of Technology in 1967. My degree is in Mechanical Engineering.
2. I have been an employee of Nissin Kogyo Co. from 1994 to present. My most recent job title is Executive Chief Engineer. My most recent responsibilities and tasks as Executive Chief Engineer include:
 - development of different casting methods including die casting and gravity casting methods for manufacturing of vehicular parts such as, for example, master cylinders, caliper bodies and other braking components; and

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- development of different braking components including for example, master cylinders, vacuum pumps, caliper bodies and other braking components.

3. I hold many patents and have been noted as an author on a number of publications relating to the automotive industry. In total, I hold approximately 129 patents (a partial list being attached hereto) and have five publications. The publications are entitled:

- Development of all Aluminum Body for NSX;
- Development of all Aluminum Body for Automotive;
- Development of Highly Efficient 1-Camshaft 4-Valve Engine; and
- Development of Fiber Reinforced Aluminum Connecting Rod (2 publications with the same title).

4. My education, years of service in the field of vehicular braking systems, and recognition in the form of patents and publications establish me as an expert in the field of vehicular braking systems, qualified to provide evidence on the level of ordinary skill in the art and on what would be obvious to one of ordinary skill in the art.

5. A person of ordinary skill in the art would have an engineering degree and approximately 10 years of experience in the design of vehicular disk braking systems.

6. I have reviewed the patent application having Serial No. 09/695,874. I have also reviewed:

- the Office Actions dated March 22, 2002, September 12, 2002, March 12, 2003 and September 2, 2003, as well as the most recent Office Action dated March 2, 2004;
- the respective responses to the above Office Actions;

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- the Examiner's applied references as outlined in the September 2, 2003 Office Action, including:
 - JP-835530;
 - USPN 4,705,093 to Ogino;
 - JP-1146718; and
 - WIPO 98/27353 (USPN 6,298,954).

7. One of the many novel features of the claimed invention is the discovery that a caliper body of a vehicular disc brake is made by a casting method with a sprue formed at the bottom portion of the cylinder of the caliper body and used as a union hole, and the caliper body is molded with a cavity disposed with the union hole.

8. In my opinion, one of ordinary skill in the art would realize that a mold sprue is a hole through which metal is poured into the gate. But a cast sprue (e.g., sprue), as used in the invention, is different from the mold sprue. Also, the union hole is different from the sprue. In the invention, the sprue is the result of the molten metal being poured through the sprue hole of the mold. This resultant sprue is a solid piece of some height formed on a portion of the cylinder. It is this sprue that is then processed to form the union hole in which working fluid can now be used with the caliper.

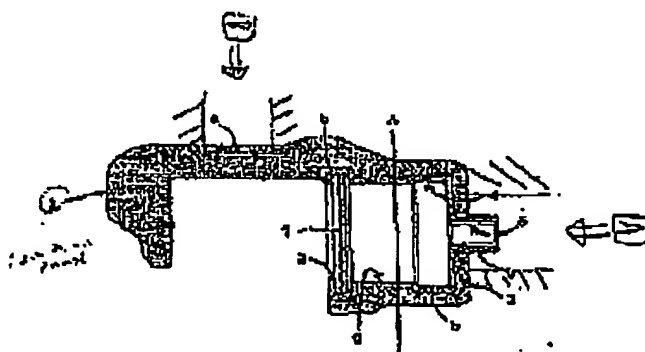
9. By using this method, in my opinion, less material and fabrication processing is required compared to that of the prior art systems (which cannot and do not use the sprue as the union hole). For example, in the invention described in application Serial No. 09/695,874, the sprue can now be used to form the union hole, saving materials and fabrication time. This is one of the many novel features of the claimed invention, as is evidenced, in my opinion, from the review of the claims and the prior art of record.

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10. In my opinion, one of ordinary skill in the art would readily understand the invention and the benefits derived therefrom, after reading the disclosure and reviewing the figures of application Serial No. 09/695,874. This person of ordinary skill would also recognize from the text and the drawing figures the many novel features of the invention, one of which is the use of the union hole formed from the sprue. It is my opinion that one of ordinary skill in the art would not find at least this novel feature over any one of the applied references.

11. It is my expert opinion that one of ordinary skill in the art would recognize that JP8-35530 does not show that a flange portion of the union hole is formed by processing the sprue after the casting. As JP8-35530 should be understood, it is simply impossible to use the inlet hole 5 of JP8-35530 as a sprue. In the case where the inlet hole 5 is utilized as a sprue and a molten metal is provided from the direction A (as shown below in the figure reproduced), the hole 5 would be closed. In order to prevent the hole 5 from being closed, the molten metal must be provided from the B-direction at a place other than the hole 5. It would then be impossible for the hole to be used as a sprue.



12. It is my expert opinion that one of ordinary skill in the art would readily recognize that JP-H1-146718 would be used exclusively for resins or plastics. This would not be related to nor could it be modified for the use of casting automotive braking systems, for example. Said

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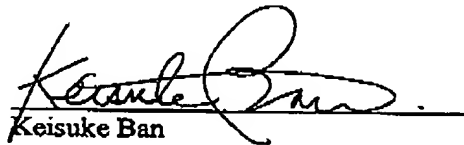
otherwise, this reference is directed to injection molding processes of resins, a material that would not be used for casting a caliper body of a vehicular disc brake. By way of illustration, the Abstract of JP-H1-146718 clearly teaches storing data on compression pressure and variations of volume due to cooling temperature on a storage medium for injection compression processes for resins and plastics. For example, the Abstract states, in part:

P-v-t diagram (pressure-volume-temperature relative diagram) of
each resin.... (Emphasis added.)

13. In conclusion and in my expert opinion, one of ordinary skill in the art, after reviewing all of the applied references would conclude that none of these references, either alone or in any combination, would teach or suggest, or could be modified to teach, the many novel features of the claimed invention, one of which is forming a union hole from the sprue, for example, as discussed above.

14. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application and any patent issuing thereon.

Date May 25, 2004


Keisuke Ban

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